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EXAMINER

BRANCOLINI, JOHN R

ART UNIT	PAPER NUMBER
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2153

DATE MAILED: 01/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/619,553

Applicant(s)

PTASINSKI ET AL.

Examiner

John R Brancolini

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 July 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Claims 1-42 are pending in the application.

#### ***Priority***

The application claims priority to US Provisional Application number 60/144,789. The effective filing date for the application is July 20, 1999.

#### ***Drawings***

This application, filed under former 37 CFR 1.60, lacks formal drawings. The informal drawings filed in this application are acceptable for examination purposes. When the application is allowed, applicant will be required to submit new formal drawings. In unusual circumstances, the formal drawings from the abandoned parent application may be transferred by the grant of a petition under 37 CFR 1.182.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: Fig. 1, Item 10. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

This application, filed under former 37 CFR 1.60, lacks formal drawings. The informal drawings filed in this application are acceptable for examination purposes. When the application is allowed, applicant will be required to submit new formal drawings. In unusual circumstances, the formal drawings from the abandoned parent application may be transferred by the grant of a petition under 37 CFR 1.182.

The drawings are objected to because in Fig. 2, reference numbers 205a and 210a appear to point to the same feature. Also in Fig. 2, reference numbers 205b and 210b appear to point to the same feature. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because of excessive length.

Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities: The spacing of the lines of the specification is such as to make reading and entry of amendments difficult. New application papers with lines double spaced on good quality paper are required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-42 are rejected under 35 U.S.C. 102(e) as being anticipated by  
Compliment et al. (US Patent 6360260), hereinafter referred to as Compliment.

In regards to claim 1, Compliment discloses a method of verifying connectivity between network nodes, comprising, for each network node:

- Providing periodic time intervals (Timer provided for creating time intervals, col 8 lines 4-11).

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- Counting elapsed periodic time intervals since transmission of a link integrity indication frame, the link integrity indication frame being a frame which, when transmitted by a network node, can be received by all other nodes on the communications network and which contains a source identifier that uniquely identifies a transmitting node (Fig 8 is a representation of the frame sent, see also col 6 lines 9-23).
- Receiving frames from a sending node and maintaining during each periodic time interval a node state status and a current received frame source identifier (Frames are received and the management table records node status and an identifier, col 7 lines 1-26).
- Upon the expiration of a predetermined elapsed time interval determining the node state status and a count of the elapsed periodic time intervals since transmission of a link integrity indication frame (upon expiration the node state is checked on the connection state field, col 7 lines 11-21).
- Transmitting a link integrity indication frame based upon determining:
  - The count of predetermined elapsed time intervals as being greater than a predefined count limit (Once the time limit expires, a registration process begins).
  - The node state status as not being indicative of network traffic (a connection state field maintains a status of being indicative of traffic, col 7 lines 11-21).

In regards to claim 2, Compliment discloses the source identifier is a source address and the current received frame source identifier is a current received frame source address (col 6 lines 12-14 show both a source and destination address).

In regards to claim 3, Compliment discloses counting the elapsed periodic time intervals includes:

- Incrementing a counter every time a periodic time interval elapses and the network node has not sent a link integrity indication frame during the elapsed time interval (Fig 6 shows incrementing the counter, step 370).
- Resetting the counter whenever the network node transmits a link integrity indication frame (Fig 6 shows initializing or resetting the timer to 0).

In regards to claim 4, Compliment discloses maintaining a node state status includes:

- Establishing a node initial state status upon receipt of a frame from another node on the network (establishing a initial state is shown, col 6 lines 49-62).
- Upon receiving a subsequent frame within the predetermined elapsed time interval, comparing the maintained current received frame source address with a subsequent frame source address (Fig 5 shows the comparison method, also see col 6 lines 49-62).
- If the comparing indicates a same source address, the node state status remains unchanged (Fig 5, also see col 6 lines 49-62).

- If the comparing indicates a different source address, the node state status changes to being indicative of network traffic and transmitting a link integrity indication frame is suppressed (a state table is updated, col 7 lines 11-21).

In regards to claim 5, Compliment discloses determining the node state status as not being indicative of network traffic includes providing a logic state machine having a plurality of states including a down state indicative of a non-functional network link and a plurality of up states indicative of functional network links, the states being transitional therebetween based upon predetermined network node status, expiration of periodic timing intervals and receipt of frames by the network node (a logic state table is provided to maintain status of nodes, col 7 lines 11-21).

In regards to claim 6, Compliment discloses maintaining a current received frame source address includes recording the current received frame source address in a memory table (col 7 lines 53-60).

In regards to claim 7, Compliment discloses the sending node is a node on a broadcast network (Fig 1 shows both a multicast and a point to point network).

In regards to claim 8, Compliment discloses the sending node is a node on a point-to-point network (Fig 1 shows both a multicast and a point to point network).



In regards to claim 9, Compliment discloses the communication network is a multi-layer protocol communication network (the shown network is a SNMP which can utilize multi-layers, such as a hierarchal format, Fig 1, see also col 2 lines 53-60).

In regards to claim 10, Compliment discloses the transmitting a link integrity indication frame is performed at a data link layer of the multi-layer protocol communication network (the transmission is performed by a management station at a data link layer, col 6 lines 24-36).

In regards to claim 11, Compliment discloses the network nodes whose connectivity is being verified are connected by transmission medium from the group of telephone wire, shielded twisted pair, unshielded twisted pair, cable, power line, optical fiber, or wireless medium (Fig 1 shows a wired network in which the invention is implemented, see also col 4 line 59 – col 5 line 23).

In regards to claim 12, Compliment discloses a link integrity apparatus for verifying connectivity between network nodes communicating over a transmission medium, comprising, for each network node:

- A periodic time interval generator (Timer provided for creating time intervals, col 8 lines 4-11).
- A counter system for counting elapsed periodic time intervals since transmission of a link integrity indication frame, the link integrity indication frame being a frame

which, when transmitted by a network node, can be received by all other nodes on the communications network and which contains a source identifier that uniquely identifies a transmitting node (Fig 8 is a representation of the frame sent, see also col 6 lines 9-23).

- A receiver coupled to the transmission medium for receiving frames from a sending node (Frames are received and the management table records node status and an identifier, col 7 lines 1-26).
- A storage system for maintaining during each periodic time interval a node state status and a current received frame source identifier (the management table records node status and an identifier, col 7 lines 1-26).
- Logic circuitry coupled to the counter system, the storage system and the receiver, the logic circuitry upon the expiration of a predetermined elapsed time interval determining the node state status and a count of the periodic elapsed time intervals since transmission of a link integrity indication frame (upon expiration the node state is checked on the connection state field, col 7 lines 11-21).
- A transmitter coupled to the logic circuitry and the transmission medium for transmitting a link integrity indication frame over the transmission medium based upon determining by the logic circuitry that the count of predetermined elapsed time intervals as being greater than a predefined count limit and the node state status as not being indicative of network traffic (a connection state field maintains a status of being indicative of traffic, col 7 lines 11-21).

In regards to claim 13, Compliment discloses the source identifier is a source address and the current received frame source identifier is a source address (col 6 lines 12-14 show both a source and destination address).

In regards to claim 14, Compliment discloses the counter is incremented by the logic circuitry every time an elapsed time interval expires and the network node has not sent a link integrity indication frame during the elapsed time interval, and the counter is reset whenever the network node transmits a link integrity indication frame (Fig 6 shows incrementing the counter, step 370, as well as resetting the timer to zero).

In regards to claim 15, Compliment discloses the logic circuitry maintains node state status by:

- Establishing a node initial state status upon receipt of a frame from another node on the network (establishing a initial state is shown, col 6 lines 49-62).
- Upon receiving a subsequent frame within the predetermined elapsed time interval, comparing the maintained current received frame source address with a subsequent frame source address (Fig 5 shows the comparison method, also see col 6 lines 49-62).
- If the comparing indicates a same source address, the node state status remains unchanged (Fig 5, also see col 6 lines 49-62).

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- If the comparing indicates a different source address, the node state status changes to being indicative of network traffic and transmitting a link integrity indication frame is suppressed (a state table is updated, col 7 lines 11-21, and the frame is not sent).

In regards to claim 16, Compliment discloses the logic circuitry functions as a logic state machine having a plurality of states including a down state indicative of a non-functional network link and a plurality of up states indicative of functional network links, the states being transitional therebetween based upon predetermined network node status, expiration of periodic timing intervals and receipt of frames by the network node (a logic state table is provided to maintain status of nodes, col 7 lines 11-21).

In regards to claim 17, Compliment discloses the memory storage system includes memory table for maintaining a current received frame source address (col 7 lines 53-60).

In regards to claim 18, Compliment discloses the sending node is a node on a broadcast network (Fig 1 shows both a multicast and a point to point network).

In regards to claim 19, Compliment discloses the sending node is a node on a point-to-point network (Fig 1 shows both a multicast and a point to point network).

In regards to claim 20, Compliment discloses the communication network is a multi-layer protocol communication network (the shown network is a SNMP which can utilize multi-layers, such as a hierarchal format, Fig 1, see also col 2 lines 53-60).

In regards to claim 21, Compliment discloses the transmitting a link integrity indication frame is performed at a data link layer of the multi-layer protocol communication network (the transmission is performed by a management station at a data link layer, col 6 lines 24-36).

In regards to claim 22, Compliment discloses the network nodes whose connectivity is being verified are connected by transmission medium from the group of telephone wire, shielded twisted pair, unshielded twisted pair, cable, power line, optical fiber, or wireless medium (Fig 1 shows a wired network in which the invention is implemented, see also col 4 line 59 – col 5 line 23).

In regards to claim 23, Compliment discloses a method of verifying connectivity between interconnected nodes in a network, the method comprising the steps of:

- Determining when an interval of a first interval timer at a first node expires (a timer is provided for checking time intervals, col 8 lines 4-11).
- Transmitting, from the first node in response to said first interval timer, a data frame addressed to all of said interconnected nodes, the data frame including an

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address of said first node (the management station is used to transmit frames which includes an address, col 6 lines 9-36).

- Receiving, by at least one of said interconnected nodes, the data frame; and each one of the receiving nodes then deciding:
  - That there is connectivity with the network in general (a management table keeps track of connectivity, col 7 lines 1-26).
  - That, based on the address of the first node, a connection with the first node is functional (a connection state field is used to maintain a listing of functional nodes, col 7 lines 7-11).

In regards to claim 24, Compliment discloses the steps of:

- Determining when an interval of a next interval timer at a next node expires (a timer is provided for checking time intervals, col 8 lines 4-11).
- Transmitting, from said next node in response to said next interval timer, a data frame addressed to all of said interconnected nodes in the network, the next data frame including an address of the next sending node (the management station at a second node is used to transmit frames which includes an address, col 6 lines 9-36).
- At least one of said interconnected nodes receiving the data frame; and each one of the receiving nodes then deciding, based on the address of the next node, that a connection with the next node is functional (a connection state field at a receiving node is used to maintain a listing of functional nodes, col 7 lines 7-11).

In regards to claim 25, Compliment discloses the receiving step further comprises recording the address of the first node in a table (the management table contains the address of the nodes, or the management stations, col 7 lines 1-10).

In regards to claim 26, Compliment discloses the steps of:

- Recording the addresses of the first node and the next node in a table (col 7 lines 1-10).
- Comparing the address of the next node with the address of the first node (Fig 5 shows the comparison method, also see col 6 lines 49-62).

In regards to claim 27, Compliment discloses the step of each one of the receiving nodes suppressing transmission of a data frame for a predetermined number of intervals (the logic state table maintains whether there is a connection or not, once no connection is determined, the registration process will begin after a selected interval, col 7 lines 1-26).

In regards to claim 28, Compliment discloses the steps of:

- Each one of the receiving nodes receiving data frames from each of the other interconnected nodes until the address of each of said interconnected nodes is recorded (the management station receives and records the addresses).

- Each one of the receiving nodes then deciding, based on the addresses received from of each of said interconnected node, that the network of said interconnected nodes is functional (a connection state field at a receiving node is used to maintain a listing of functional nodes, col 7 lines 7-11).

In regards to claim 29, Compliment discloses the steps of:

- Each one of the nodes that does not receive the data frame waiting a predetermined number of intervals (a timer is used to determine waiting times, col 8 lines 4-11).
- Upon not receiving any data frames, then deciding that a connection in the network of said interconnected nodes is down (when no frames are received, a connection state field at a receiving node is used to show no connection, col 7 lines 7-11).

In regards to claim 30, Compliment discloses the data frame comprises a data-layer header that includes the address (see col 6 lines 9-23).

In regards to claim 31, Compliment discloses the data frame includes a message (see col 6 lines 9-23).

In regards to claim 32, Compliment discloses the data frame further comprises a destination address (see col 6 lines 9-23).



In regards to claim 33, Compliment discloses the destination address is a broadcast address (Fig 1 shows a broadcast network being used which implies the destination address is a broadcast address).

In regards to claim 34, Compliment discloses the destination address is a multicast address (Fig 1 shows a multicast network being used which implies the destination address is a multicast address).

In regards to claim 35, Compliment discloses a system for verifying connectivity in a network, comprising:

- A plurality of interconnected nodes (Fig 1 shows interconnected nodes), each node including:
- An independent interval timer (Timer provided for creating time intervals, col 8 lines 4-11).
- A data frame transmitter, responsive to the interval timer, the data frame being addressed to all other nodes in the network and containing at least a source address (once the timer expires, a registration process begins by the management station transmitting a data frame, col 6 lines 24-36).
- A data frame receiver for receiving said data frames from other interconnected nodes in the network (Frames are received and the management table records node status and an identifier, col 7 lines 1-26).

- Logic means, responsive to the receiving means, for deciding, via a source address in a received data frame, whether a connection between a node corresponding to a source address is functional (a logic state table is provided to maintain status of nodes, col 7 lines 11-21).

In regards to claim 36, Compliment discloses the logic means is configured to suppress the transmission means from transmitting a data frame to a node corresponding to a functional transmission medium until after a predetermined first number of intervals expire (the logic state table maintains whether there is a connection or not, once no connection is determined, the registration process will begin, col 7 lines 1-26).

In regards to claim 37, Compliment discloses the data frame comprises a data-layer header that includes the address (see col 6 lines 9-23).

In regards to claim 38, Compliment discloses the data frame includes a message (see col 6 lines 9-23).

In regards to claim 39, Compliment discloses the data frame further comprises a destination address (see col 6 lines 9-23).

In regards to claim 40, Compliment discloses the destination address is a broadcast address (Fig 1 shows a broadcast network being used which implies the destination address is a broadcast address).

In regards to claim 41, Compliment discloses the destination address is a multicast address (Fig 1 shows a multicast network being used which implies the destination address is a multicast address).

In regards to claim 42, Compliment discloses the connections are from the group of telephone wire, shielded twisted pair, unshielded twisted pair, cable, power line, optical fiber, or wireless transmission medium (Fig 1 shows a wired network in which the invention is implemented, see also col 4 line 59 – col 5 line 23).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Marin et al. (US Patent 6269079), a system for distributing connection information between nodes.

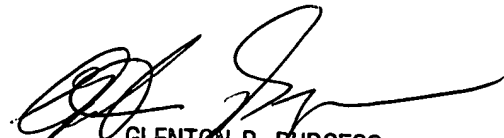
Dawes et al. (US Patent 6411997), a system of determining topology of a network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John R Brancolini whose telephone number is (703) 305-7107. The examiner can normally be reached on M-Th 7am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton Burgess can be reached on (703) 305-4792. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

JRB



GLENTON B. BURGESS  
SUPERVISORY PATENT EXAMINER  
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